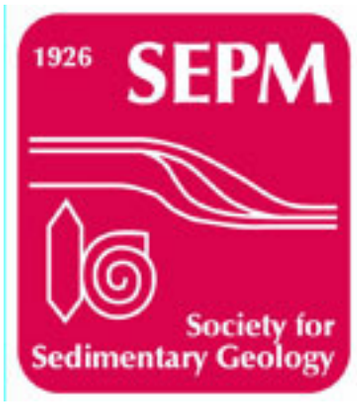

PALEONTOLOGICAL NOTES

DANGER OF INHALING THE VAPOR OF CARBON TETRACHLORIDE[1]

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Carbon tetrachloride has been used extensively in recent years as a heavy liquid for separating foraminifera from sand, silt, or marl by flotation. The advantages of this liquid are its cleanness, low cost, evaporation rate, non-inflammability, and the supposedly harmless character of its vapor wherever its concentration is insufficient to cause suffocation.

Believing that the vapor is harmless when inhaled, many, including the writer, have not made more than ordinary provisions for ventilation. I have known of the use of this liquid in poorly ventilated rooms. Recently my attention has been directed to a growing opinion among medical scientists that the ingestion or inhalation of carbon tetrachloride may produce serious degeneration of kidney and liver tissues. Wishing for more definite information on this subject a request was sent to the Surgeon General of the U. S. Public Health Service for a statement that might be published or for a reference to a report that is generally acceptable. His reply follows:

My dear Mr. Henbest:

Your letter of July 17 addressed to the Surgeon General, U. S. Public Health Service, and requesting information as to the possible hazard in breathing carbon tetrachloride vapor, has been referred to me for reply.

I regret that the Public Health Service has no publications for distribution dealing with this subject. The following statement is made from the literature.

The action of carbon tetrachloride is similar to that of chloroform. Its general action is that of an anesthetic. If breathed in sufficient concentration it may cause damage to cells of the liver and degenerative changes in other tissues. Dr. Lehmann of the University of Wurzburg has reported that 1,600 parts per million produce no reaction after several hours, which probably refers to a single exposure. Where the exposure is much prolonged or repeated the maximum safe concentration is much less. Passed Assistant Surgeon F. R. Brunot, U S. Public Health Service, places it at 200 parts per million, on the basis of animal experimentation and observations in a limited number of dry cleaning establishments. Dr. Brunot also states that where the odor of carbon tetrachloride is pronounced, the concentration very likely exceeds 200 parts per million, and recommends that measures should be directed to eliminate the fumes.

Down-draft exhaust ventilation, where practicable, is advised, as this controls the carbon tetrachloride at its source. There should always be good general ventilation. In instances where high concentrations can not be avoided, a canister type of gas mask containing activated charcoal is suggested.

By direction of the Surgeon General.

Respectfully,

lSignedl L. R. THOMPSON
Assistant Surgeon General,
Chief, Scientific Research Division.

Since many laboratories are equipped with ordinary hoods, but not with down-draft ventilators, it seems most practicable in obtaining good ventilation to equip the hood for forced draft during summer use. During the winter the natural draft will probably provide adequate ventilation. Besides using an electric fan, a good draft can frequently be obtained by heating the air in a hood by a gas burner. If the air current is sufficient, the vapor of the carbon tetrachloride will probably not extinguish the flame.

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